

R. T. HICKS CONSULTANTS, LTD.

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August 29, 2014

Dr. Tomáš Oberding
NMOCD District 1
1625 French Drive
Hobbs, New Mexico 88240
VIA EMAIL

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RE: Murchison – Jackson Unit #14H, In-place Burial Notice
Unit D, Section 15, T24S, R33E, API #30-025-41072

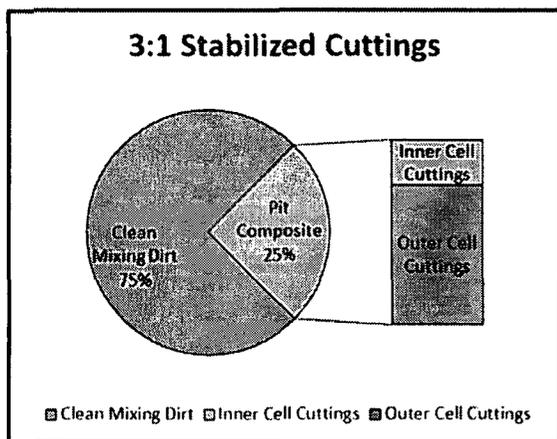
Dear Dr. Oberding:

On behalf of Murchison Oil and Gas, R. T. Hicks Consultants provides this notice to NMOCD with a copy to the State Land Office (certified, return receipt request) that closure operations at the above- referenced temporary pit will begin on **Tuesday, September 2, 2014**. Depending on the availability of machinery, the closure process should require about two weeks.

The "In-place Burial" closure plan was submitted on October 1, 2013 with the C-144 temporary pit application and NMOCD approved the plan on October 21, 2013. The rig was released on December 7, 2013. Murchison, Hicks Consultants, and NMOCD met in the field on May 21, 2014 and discussed the use of calculated values for composites and the observations we've made regarding mixing highly heterogeneous (textually and chemically) samples. A 3-month extension for closure was granted by NMOCD on June 4, 2014 to allow time for laboratory analysis of samples collected that same day.

Closure samples were first collected on February 12, 2014. As shown in the enclosed summary table, the stabilized samples did not meet closure limits for TPH and GRO+DRO. This first sampling showed two samples with GRO+DRO of 4050 and 3590 mg/kg.

The pit contents were sampled again on April 2, 2014 and duplicate samples (one field-mixed, one lab-mixed) resulted in GRO+DRO concentration of 2030 and 2340 mg/kg, a decline of about 50% over a period of about 7 weeks.



The table also shows the *calculated* concentration for these "stabilized" samples. The calculated value mathematically mixes 3 parts clean soil from the pit berms beneath the liner (mixing dirt) with 1 part of the composite pit sample, as depicted in the adjacent chart. The pit composite sample consists of 25% solids from the inner cell/shoe of the drilling pit and 75% of the solids from the outer cell. The volume of component parts is determined by the bit schedule showing the diameter of the bit (hole) and the length of the hole drilled with that bit. At the Jackson Unit 14H pit, the inner cell received solids from drilling the surface

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section of the well, which is 25% of the total volume of the hole. The outer cell of the drilling pit received solids from the salt section (intermediate section) and the production section of the hole – 75% of the volume. To calculate the concentration of the stabilized solids, we used the equation below:

$$\frac{(\text{Inner} * 0.25) + (\text{Outer} * 0.75) + (\text{Mixing} * 3)}{4} = \text{Table II Result Comparison}$$

The calculated values from the April 2 sampling event did not differ significantly from the physically mixed results.

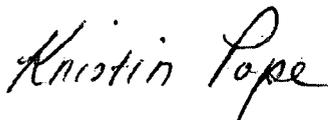
The final closure sampling event occurred on June 4, 2014 and the lab analyses of the physically mixed stabilized sample yielded GRO+DRO and TPH concentrations of 2820 and 4000 mg/kg respectively. However, the individual samples of the inner cell, the outer cell and the field mixed composite pit sample exhibit a lower concentration of TPH and GRO+DRO than the field stabilized sample which contained 3 parts clean mixing dirt. Thus, the unstabilized samples meet the criteria for in-place burial and when 3 parts of clean dirt are added to the pit contents, the hydrocarbon concentration **increases** by 200% for GRO+DRO and an order of magnitude for TPH. We have observed this phenomenon of increased hydrocarbon concentrations after mixing the clean dirt on several occasions.

All samples were collected in accordance with the Pit Rule. Using concentrations from the last sampling event, the composites from the inner horseshoe cell (freshwater), the outer horseshoe cell (brine and cut brine), and the field-prepared pit composite meet the Table II criteria of the Pit Rule without physically mixing with clean dirt. The resultant calculated concentrations of GRO+DRO and TPH also meet Table II limits that allow in-place burial of the stabilized cuttings. We are certain that calculated "mixing" using the latest individual component samples "demonstrate that, after the waste is solidified or stabilized with soil or other non-waste material at a ratio of no more than 3:1 soil or other non-waste material to waste, the concentration of any contaminant in the stabilized waste is not higher than the parameters listed in Table II of 19.15.17.13 NMAC."

I will follow up this notice to you with a phone call as required by the Pit Rule.

Sincerely,

R.T. Hicks Consultants



Kristin Pope

Enclosure: Summary table of laboratory analyses

Copy: Murchison Oil and Gas,
Ed Martin, State Land Office
New Mexico State Land Office
PO Box 1148
Santa Fe, NM 87504-1148
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JACKSON UNIT #14H Sample Name	Sample Type	Sample Date	Chloride 80,000	Benzene 10	BTEX 50	GRO+ DRO 1000	TPH 418.1 2500	GRO+ DRO+ DROext	GRO	DRO	MRO
3:1 Stabilized Cuttings	field stabilized, duplicate	2/12/2014	14000	0.67	19.67	4050	4200	4050	250	3800	0
3:1 Stabilized Cuttings	field stabilized, duplicate	2/12/2014	14000	0.95	24.45	3590	4500	3590	290	3300	0
Mixing Dirt	composite	2/12/2014	39	-	-	-	-	-	-	-	-
Mixing Dirt	composite	4/2/2014	0	0	0	0	0	0	0	0	0
Field Inner Comp.	composite	4/2/2014	2200	-	-	977	2400	1407	57	920	430
Field Outer Comp.	composite	4/2/2014	36000	-	-	9160	840	9160	460	8700	0
Field Inner (1) + Outer (3) Pit Comp.	field weighted composite	4/2/2014	40000	0.83	17.83	4810	4400	4810	210	4600	0
Field 3:1 Stabilized Cuttings	field stabilized	4/2/2014	16000	0.26	8.36	2030	330	2030	130	1900	0
CALCULATED Stabilized (using field inner and outer composites)**						1779					
Duplicate Inner Comp.	composite	4/2/2014	1700	-	-	251	210	351	21	230	100
Duplicate Outer Comp.	composite	4/2/2014	38000	-	-	6150	2500	7350	350	5800	1200
Lab Inner (1) + Outer (3) Pit Comp.	lab weighted composite	4/2/2014	27000	1.3	38.2	10420	8000	10420	420	10000	0
Lab 3:1 Stabilized Cuttings	lab stabilized	4/2/2014	6700	0.49	10.49	2340	2200	2340	140	2200	0
CALCULATED - Stabilized (using duplicate inner and outer composites)**						1169					
Inner Composite	composite	6/4/2014	-	-	-	138	1700	138	38	100	0
Outer Composite	composite	6/4/2014	-	-	-	1640	210	1640	910	730	0
Pit Composite (1 inner: 3 outer)	Field weighted composite	6/4/2014	-	-	-	970	300	1190	120	850	220
3:1 Stabilized Cuttings	field stabilized	6/4/2014	11000	0.17	7.17	2820	4000	2820	220	2600	0
CALCULATED Stabilized**						316.1	145.6				
**[Mixing Dirt x 0.75] + [Pit Composite (1 inner: 3 outer) x 0.25] = 3:1 Stabilized											
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW, Suite F-142 Albuquerque, NM 87104 505-266-5004						Murchison Oil and Gas, Inc. Jackson Unit #14 Temporary Pit			Table 1		
						Closure Samples Summary			8/29/2014		

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